

**University of Illinois Student Life and Culture Archives**

**UI Centennial Project**

**Interviewee: Roger Adams**

**Interviewer: John Mellecker**

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Roger Adams: My first Ph.D., Earnest [?] was, went with that company back in 1918 and before he retired was president and chairmen of the board.

**John Mellecker: Well then by providing [?], Caruthers, and people like this, do you regard this as one of your major accomplishments to industry?**

RS: Yes, I consider that an accomplishment, but I don't consider it as any particular credit to me because they were born with ability and they happened to come to me to study. So that's the, you see, I'm convinced that originality is not anything that can be developed in a man. Originality is born in a man and what education does is to provide the opportunity for him to make the best of what he has, what he's pondered. If on an arbitrary scale he's born with fifty percent ability in originality and imagination and doesn't have any education, he might get the advantage of only ten percent instead of fifty. But if he has an education and he's trained properly he can get the advantage of the full fifty percent and the same way all the way up the scale. So that's what I consider education does to the scientists at least and I believe that of [?] anybody else as a matter of fact. Originality and imagination is not a characteristic that can be trained to be developed in school or in college. All you do is to develop the man so he can use what he's got properly.

**JM: Well for some reason an enormous number of the men who passed through your influence went on to success. Now there must be some reason for this. As a school teacher don't you feel that you assisted upon some things of these men?**

RA: Well, I think this. I think one, I was very industrious myself and I expected them to be industrious and they were. And so, I tried to instill in them certain characteristics that I thought were necessary for success.

**JM: What could you name besides industrious, other [tags?] that you put on [crosstalk].**

RA: Getting along with people and getting acquainted with people because you know if you don't do that you can't get very far in this world. I think those two things. But the most important thing was getting a lot of [detail?].

**JM: So [inaudible] as innovation capacity. In your insistence that they work hard did this also involve covering a vast amount of factual information?**

RA: Yes of course, in any, the man who has the best memory along with these other things is a man who goes far. It's because he then has at his fingertips the information that he needs for doing original work. If he has to go to the library to look up everything he's not going to go very far. So that every man that I know who has been very distinguished has had a phenomenal memory. I mentioned that about Sir Robert Robinson and I could mention it about the younger fellows like [Jersey?] and [Woodward?]. They have phenomenal memories. They remember everything that they read and remember precisely and it stays in their minds in such a form that it's usable. It's in a usable form after they read it. And take for example E.J. Corey who's one of the younger brilliant organic chemists in this country. Professor at Harvard now. I don't know, he might be 34 or 5 years old. Just anything he reads just sticks there and he has it on a little shelf and he can see it all the time when he's thinking about his problems.

**JM: Well, some of these inborn characteristics are very important.**

RA: I consider it so.

**JM: Do you feel with your experience that you can judge what young graduate students, which ones are going to be able to demonstrate these professions.**

RA: If a man is very good you can usually see it. You usually underestimate the man. In other words, I picked out Caruthers as phenomenally good and he was. And I picked out half a dozen others of my students who I thought were unusually good. But some of those who are in-between you more frequently than not don't give them as high a recommendation as they deserve and when they get out they do much better than you anticipated. But it's not easy to pick out and say just how each man is gonna do. Usually there'll be two or three that you are very sure of but the others you're not quite so sure of.

**JM: So you have strongly emphasized getting along with people and getting to know people as being essential to a career in chemistry.**

RA: I believe so. A career in anything. A career in chemistry or anything else you wanna name. I don't care what it is.

**JM: Well, a career in salesmanship we might expect it. It's less expected I think by most people to be-**

RA: I think the layman who doesn't understand science at all kind of thinks that all a scientist has to do is go into laboratory and work by himself and that's it. But of course, it isn't true. A man is really successful who knows how to get along with people and take advantage of the other people's information.

**JM: Well in the very concept of the chemist's club is sound.**

RA: I believe it is. That's what I said at the very beginning. I thought the possibility of meeting people here, other chemists, was what, perhaps the main objective of the chemist's club was to

get people together, chemist's together in a place where they could meet, talk with each other and get acquainted.

**JM: So [here?] this beautiful clubhouse of ours, this membership [inaudible] provides a place where the chemists who understand this need, that these two needs that you're speaking of, to get along with people, understand people, where he can operate. This gives him a place which operates. Now for the ones that may not readily understand this or understand at this point in their careers, do you feel that more might be done to bring them together and into the clubhouse and help understand the need to be with or socialize?**

RA: I don't see how much more can be done because so many of your members live way out of town, they can only come when they have certain engagements and you can't just say, "Well here now we're gonna have an open house and a dinner tonight. Why, come in and we'll have a kind of smoker." That's all right for local people but you can hardly expect people to come from San Francisco or Chicago to that sort of thing.

**JM: Does any way occur to you that the club might better reach them, serve them?**

RA: I don't see how you can really unless, except by urging them to become members and to come here when they are in New York.

**JM: Well, if they are already members [crosstalk].**

RA: Oh, if they are already members, I honestly don't see you can do much more than you're doing now. You provide a very good library and have meetings here regularly. I know I've attended meetings here when I've been able to come. [Inaudible] [trips?] have something else to do otherwise I couldn't afford to come here just for dinner. That's why [they?] come when [inaudible] was here. Would've cost me an extra hundred dollars to come fly to New York to Texas and I still have to count the hundred dollars.

**JM: Do you have any comments about the literature today that the chemists [has to?].**

RA: I just don't know how to answer that problem. Everybody's confused as to what the future holds. There's so much literature coming out in the theme of chemistry, organic chemistry in particular, that no one man can follow it anymore. And we have general articles summarizing and now summary summary articles and it's pretty difficult to know what will happen in the future. I suppose one of these days you'll be able to have an IBM machine in the laboratory and give it a few buttons and they'll drop out 50 or 100 papers that you're supposed to read on some particular subject but we haven't gotten that far yet.

**JM: I understand the ATS is investigating.**

RA: Oh yeah [crosstalk]. I really think that sooner or later that will come but it's hard to know what to feed into the machine. But sooner or later. Of course you can do it to a slight extent now but let's say to get down to some detailed information that you want without going through all

the extensive literature to look at the papers, you can punch a machine and have, let's say, 50 papers drop out that have information on that subject, that'll be a tremendous advantage to saving lots and lots of time. I think that's bound to come but it might be a decade from now before it gets so people use it. But otherwise, I don't see any answer to because what it means now is that the chemists, the academic chemists, or the industrial chemists he has to specialize more and more and he can just barely keep up with a very narrow specialty. Consequently, he can't take advantage of what the chemists in the olden days could of knowing a lot about what the other people were doing. He just takes all his time to keep up with his own very small narrow field.

**JM: So specialization is man's [protective?] [inaudible].**

RA: Yes, but-

**JM: He shrinks his field of knowledge in order to remain knowledgeable about what is important.**

RA: Yes, and that's why the man who has a phenomenal memory and can still retain some of these other things that he gets let's say from broad reading of general articles that he might adapt to his own work is in a better position. But it looks almost hopeless to me, the literature situation, and I see no alternative except to have some kind of a machine that will drop out the papers that you need to read for your own particular subject.

**JM: Not extracts or abstracts but full information.**

RA: Well, the titles of papers so you can look them up. I don't think the abstracts are gonna do you too much good because if you're gonna use that information in the laboratory you've got to read the original article. But you can read 50 articles, but you can't read 5,000.

**JM: The attendance at the review paper sessions out at the ACS in Chicago division of organic chemistry was just overflowing. Did you hear about this or did you know-**

RA: Yes, I was up there and attended some of them. Now of course the chemist is interested in hearing a review of even narrow fields and goes to see what he's missed anything. And I think that can be expected that you'll have more and more general review symposiums if you want to call it that and larger and larger attendance. If you take this meeting that I just attended down in Texas, we had a symposium on some of the modern developments in biochemistry. There were seven Nobel Prize winners who gave talks down there and it had very little publicity but over 1,600 registrants who came to hear those men talk.

**JM: Dr. Ochoa made the *New York Times*.**

RA: Yes, I came back with Dr. Ochoa on the plane yesterday and Dr. Stanley and Dr. [Gradino?] were there. Dr. [Crabbs in England?]. I can't think of the others right at the moment, but seven of them. Oh, I know, Kornberg of Stanford. Very distinguished group and very fine papers.

**JM: Is there any-**

RA: Let's see, Georgie also.

**JM: Is there any significant process on the ability to predict the physiological characteristics of organic compounds. Will they go through their [shape?] or go through membranes?**

RA: Well, I would say that very little process has been made though there's a great deal of interest in that sort of thing now. And of course, the work that's being done on DNA and RNA and on the [frodian?] materials involved, that sort of speculation and study and there's no question but what the chemists in their field, the physical characteristics of the molecule have a lot to do with its physiological properties. The confirmation and just exactly how the atoms or the molecule are arranged, the atoms in the molecule. But they're still way off from being able to predict when it will have physiological activity.

**JM: Would you say the days have changed the situation very much on this matter of deciding what to go ahead and synthesis and hope that you'll get a physiologically active compound.**

RA: I would say the situation today is what it was 50 years ago. Not very much progress in that field. They still have to take a natural product and go out from there. And the drugs that have been discovered which have come from chemistry and not by analogy to natural products have always been by luck. They were looking for something different and they made an observation and then found-

**JM: Well, is there much research that needs to be done to correlate the known performance of various structures and try to build mathematical models?**

RA: That's been going on for a long time, but no one yet has been able to find out any general rules about relationship between physiological action and chemical constitution.

**JM: Is this a bigger research job though that can be done or it's being done. It's being done-**

RA: Well-

**JM: By people having interests in certain fields.**

RA: No, I think that it's going on and still on an empirical basis and I think it's gonna be many years yet before it gets on a scientific basis. It's to say they get a lead and then they study the effects of the changing groupings of functional groupings. And sometimes they come out with something more active and sometimes less active. But the lead comes either by luck or from some natural product that the Indians a few hundred years ago discovered.

**JM: Is this [RA laughs] kind of work representative or are there any other fields where in your experience there needs to be a major overall coordination such as you were involved in during the war, you lead during the war in order to pull all the information together and make sure that enough ground is getting covered?**

RA: Well, I think things are going along pretty well myself. I mean as well as can be expected [crosstalk].

**JM: You talked about the use of electronic apparatus. Magnetic recording and retrieval that sort of thing. Is proper use of that getting to a stage where [Walver Carlson?]'s project you know will be [inaudible].**

RA: Well, I don't think it's reached that stage yet where many people use it but that's coming.

**JM: Do we need to think bigger about some of these things [inaudible].**

RA: [Not?] the literature and how to handle that, that's a very important feature in research. To be sure that you get all the literature and right now, nowadays you'll find things being published that have been published before because the public just hasn't found it in the literature. Either hasn't looked for it or hasn't found it. And that didn't happen very often up to 10 or 15 years ago, you'd be very critical of a person if he published something and it had been published before or part of it had been published before and he didn't mention the article. But nowadays that happens quite frequently. And even the reviewers you see are not familiar with the literature so you can't blame them for the [referees?] are missing it.

**JM: Now doesn't the organic chemist of today also have the problem of the literature [inaudible] doesn't work.**

RA: Yes, yes, but that we saw as you thinking about ion NMR and so on and the interpretation-

**JM: Chromatography.**

RA: And chromatography, oh yes, but those things really the organic chemist made more contributions in that field than the analytical chemists. The real development was done by organic chemists.

**JM: But I mean the flow now of literature is in an area called analytical chemistry is being published in this publishing area and it's just another thing that the organic chemists have to try to read.**

RA: That's right. Well, he has to keep up with particularly the newer equipment and the improvements and that sort of thing. Of course, the analytical chemists do do that, but you'd be surprised to see how many of the new developments and improvements come from the organic chemists, not from the analytical chemists. I mean in fields like chromatography.

**JM: Well-**

RA: Haven't you had enough [crosstalk] [both laugh].

**JM: Dr. Adams, thank you so much from the chemist's club.**

RA: [Bet?] you're gonna have some job deleting that. And you get that down to ten minutes. [Inaudible] listens to you're lucky.

**JM: Alright then, thank you so much. Bye.**

RA: Bye.